What is claimed is:

1. A method for facilitating authentication in a wireless network comprising:

    (a) receiving an initial nonce value from a serving mobile network in an authentication data request associated with a user device, the initial nonce value originating from the user device;

    (b) generating a subsequent nonce value from the initial nonce value based on a function that is shared with the user device;

    (c) generating an authentication vector associated with the user device, the authentication vector including the subsequent nonce value; and

    (d) transmitting the authentication vector to the serving mobile network.

2. The method of claim 1 further comprising:

    (e) receiving an International Mobile Station Identifier corresponding to the user device from the serving mobile network.

3. The method of claim 2 further comprising:

    (f) receiving a first value, a second value and a third value from the serving mobile network, wherein the first value originates from the serving mobile network, and each of the second value and third value originates from the user device;

    (g) generating a fourth value based on the first value, the second value and a second function that is shared with the user device; and

    (h) determining whether the fourth value equals the third value before the transmitting step.

4. The method of claim 3 wherein the step of generating the fourth value is carried out by evaluating the second function with the first value and the second value as inputs.

5. The method of claim 3 further comprising:

    (i) generating a fifth value; and

    (j) generating a sixth value by evaluating a third function with the fifth value as input;

and wherein the third function is shared with the user device.

6. The method of claim 5 wherein the authentication vector comprises the fifth value and the sixth value.

7. The method of claim 6 wherein the authentication vector further comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

8. The method of claim 7 wherein the first function, the second function and the third function are UMTS-standard functions.

9. A method for facilitating authentication in a wireless network comprising:

(a) receiving an initial nonce value from a user device;

(b) transmitting the initial nonce value to a home environment associated with the user;

(c) receiving an authentication vector from the home environment, the authentication vector including a subsequent nonce value derived from a function that is shared by the user device and the home environment; and

(d) transmitting the authentication vector to the user device.

10. The method of claim 9 wherein the subsequent nonce value is equal to the result of evaluating the function with the initial nonce value as input.

11. The method of claim 10 further comprising:

(e) generating a first value;

(f) transmitting the first value to the user device;

(g) receiving a second value and a third value from the user device, wherein the third value is equal to the result of evaluating a second function with the first value and the second value as inputs, and wherein the second function is shared by the user device and the home environment; and

(h) transmitting an International Mobile Station Identifier corresponding to the user device, the first value, the second value and the third value to the home environment.

12. The method of claim 11 wherein the authentication vector comprises a fourth value and a fifth value, wherein the fifth value is equal to the result of evaluating a third function with the fourth value as input, and wherein the third function is shared by the user device and the home environment.

13. The method of claim 12 wherein the authentication vector comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

14. The method of claim 13 wherein the first function, the second function and the third function are UMTS-standard functions.

15. A method for facilitating authentication in a wireless network comprising generating an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector transmitted to a serving network in connection with authentication of the serving network to a user device;

ii) an initial sequence number in the ordered set is obtained from the user device through the serving network; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device with a previous sequence number in the ordered set as input.

16. A method for facilitating authentication in a wireless network comprising receiving an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector received from a home environment corresponding to a user device in connection with authentication to the user device;

ii) an initial sequence number in the ordered set originated from the user device; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device and the home environment with a previous sequence number in the ordered set as input.

17. A signal, embedded in a medium, representing data including an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector transmitted to a serving network in connection with authentication of the serving network to a user device;

ii) an initial sequence number in the ordered set originated from the user device; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device and a home environment corresponding to the user device with a previous sequence number in the ordered set as input.

18. An apparatus for facilitating authentication in a wireless network comprising:

(a) means for receiving an initial nonce value from a serving mobile network in an authentication data request associated with a user device, the initial nonce value originating from the user device;

(b) means for generating a subsequent nonce value from the initial nonce value based on a function that is shared with the user device;

(c) means for generating an authentication vector associated with the user device, the authentication vector including the subsequent nonce value; and

(d) means for transmitting the authentication vector to the serving mobile network.

19. The apparatus of claim 18 further comprising:

(e) means for receiving an International Mobile Station Identifier corresponding to the user device from the serving mobile network.

20. The apparatus of claim 19 further comprising:

(f) means for receiving a first value, a second value and a third value from the serving mobile network, wherein the first value originates from the serving mobile network, and each of the second value and third value originates from the user device;

(g) means for generating a fourth value based on the first value, the second value and a second function that is shared with the user device; and

(h) means for determining whether the fourth value equals the third value before the transmitting step.

21. The apparatus of claim 20 wherein the means for generating the fourth value evaluate the second function with the first value and the second value as inputs.

22. The apparatus of claim 20 further comprising:

(i) means for generating a fifth value; and

(j) means for generating a sixth value by evaluating a third function with the fifth value as input;

and wherein the third function is shared with the user device.

23. The apparatus of claim 22 wherein the authentication vector comprises the fifth value and the sixth value.

24. The apparatus of claim 23 wherein the authentication vector further comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

25. The apparatus of claim 24 wherein the first function, the second function and the third function are UMTS-standard functions.

26. An apparatus for facilitating authentication in a wireless network comprising:

(a) means for receiving an initial nonce value from a user device;

(b) means for transmitting the initial nonce value to a home environment associated with the user;

(c) means for receiving an authentication vector from the home environment, the authentication vector including a subsequent nonce value derived from a function that is shared by the user device and the home environment; and

(d) means for transmitting the authentication vector to the user device.

27. The apparatus of claim 26 wherein the subsequent nonce value is equal to the result of evaluating the function with the initial nonce value as input.

28. The apparatus of claim 27 further comprising:

(e) means for generating a first value;

(f) means for transmitting the first value to the user device;

(g) means for receiving a second value and a third value from the user device, wherein the third value is equal to the result of evaluating a second function with the first value and the second value as inputs, and wherein the second function is shared by the user device and the home environment; and

(h) means for transmitting an International Mobile Station Identifier corresponding to the user device, the first value, the second value and the third value to the home environment.

29. The apparatus of claim 28 wherein the authentication vector comprises a fourth value and a fifth value, wherein the fifth value is equal to the result of evaluating a third function with the fourth value as input, and wherein the third function is shared by the user device and the home environment.

30. The apparatus of claim 29 wherein the authentication vector comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

31. The apparatus of claim 30 wherein the first function, the second function and the third function are UMTS-standard functions.

32. An apparatus for facilitating authentication in a wireless network comprising means for generating an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector transmitted to a serving network in connection with authentication of the serving network to a user device;

ii) an initial sequence number in the ordered set is obtained from the user device through the serving network; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device with a previous sequence number in the ordered set as input.

33. An apparatus for facilitating authentication in a wireless network comprising means for receiving an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector received from a home environment corresponding to a user device in connection with authentication to the user device;

ii) an initial sequence number in the ordered set originated from the user device; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device and the home environment with a previous sequence number in the ordered set as input.

34. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising:

(a) receiving an initial nonce value from a serving mobile network in an authentication data request associated with a user device, the initial nonce value originating from the user device;

(b) generating a subsequent nonce value from the initial nonce value based on a function that is shared with the user device;

(c) generating an authentication vector associated with the user device, the authentication vector including the subsequent nonce value; and

(d) transmitting the authentication vector to the serving mobile network.

35. The computer-readable medium of claim 34 wherein the method further comprises:

(e) receiving an International Mobile Station Identifier corresponding to the user device from the serving mobile network.

36. The computer-readable medium of claim 35 wherein the method further comprises:

(f) receiving a first value, a second value and a third value from the serving mobile network, wherein the first value originates from the serving mobile network, and each of the second value and third value originates from the user device;

(g) generating a fourth value based on the first value, the second value and a second function that is shared with the user device; and

(h) determining whether the fourth value equals the third value before the transmitting step.

37. The computer-readable medium of claim 36 wherein, in the method, the step of generating the fourth value is carried out by evaluating the second function with the first value and the second value as inputs.

38. The computer-readable medium of claim 36 wherein the method further comprises:

(i) generating a fifth value; and

(j) generating a sixth value by evaluating a third function with the fifth value as input;

and wherein the third function is shared with the user device.

39. The computer-readable medium of claim 38 wherein the authentication vector comprises the fifth value and the sixth value.

40. The computer-readable medium of claim 39 wherein the authentication vector further comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

41. The computer-readable medium of claim 40 wherein the first function, the second function and the third function are UMTS-standard functions.

42. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising:

(a) receiving an initial nonce value from a user device;

(b) transmitting the initial nonce value to a home environment associated with the user;

(c) receiving an authentication vector from the home environment, the authentication vector including a subsequent nonce value derived from a function that is shared by the user device and the home environment; and

(d) transmitting the authentication vector to the user device.

43. The computer-readable medium of claim 42 wherein the subsequent nonce value is equal to the result of evaluating the function with the initial nonce value as input.

44. The computer-readable medium of claim 43 wherein the method further comprises:

(e) generating a first value;

(f) transmitting the first value to the user device;

(g) receiving a second value and a third value from the user device, wherein the third value is equal to the result of evaluating a second function with the first value and the second value as inputs, and wherein the second function is shared by the user device and the home environment; and

(h) transmitting an International Mobile Station Identifier corresponding to the user device, the first value, the second value and the third value to the home environment.

45. The computer-readable medium of claim 44 wherein the authentication vector comprises a fourth value and a fifth value, wherein the fifth value is equal to the result of evaluating a third function with the fourth value as input, and wherein the third function is shared by the user device and the home environment.

46. The computer-readable medium of claim 45 wherein the authentication vector comprises a UMTS-standard cipher key and a UMTS-standard integrity key.

47. The computer-readable medium of claim 46 wherein the first function, the second function and the third function are UMTS-standard functions.

48. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising generating an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector transmitted to a serving network in connection with authentication of the serving network to a user device;

ii) an initial sequence number in the ordered set is obtained from the user device through the serving network; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device with a previous sequence number in the ordered set as input.

49. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising receiving an ordered set of sequence numbers, wherein:

i) each sequence number in the ordered set is associated with an authentication vector received from a home environment corresponding to a user device in connection with authentication to the user device;

ii) an initial sequence number in the ordered set originated from the user device; and

iii) a subsequent sequence number in the ordered set is equal to the result of evaluating a function shared by the user device and the home environment with a previous sequence number in the ordered set as input.

50. A method for facilitating authentication in a wireless network comprising:

(a) transmitting an initial nonce value to a serving mobile network from a user device;

(b) receiving an authentication vector from the serving mobile network, the authentication vector comprising a subsequent nonce value, a first value and a second value, wherein the second value was generated by a home environment associated with the user device;

(c) generating a third value based on the first value and a first function that is shared with the home environment;

(d) determining whether the third value equals the second value;

(e) determining whether the subsequent nonce value is in a list of at least one value generated based on the initial nonce value and a second function that is shared with the home environment; and

(f) engaging in communications through the serving mobile network, based on the determining steps.

51. A method for facilitating authentication in a wireless network comprising:

(a) storing a plurality of sets of nonces, each set comprising one or more values;

(b) receiving an authentication vector from a serving mobile network, the authentication vector originating from an authentication center in a home environment network associated with a device storing the plurality of sets of nonces;

(c) extracting a nonce from the authentication vector;

(d) determining whether the extracted nonce is either an element of or derivable from the set of nonces from among the plurality of sets of nonces that is associated with the serving mobile network; and

(e) engaging in communications through the serving mobile network based on the determining step.

52. The method of claim 51 wherein determining step includes obtaining a set of values based on at least one nonce from the set of nonces from among the plurality of sets of nonces and a function that is shared between the authentication center in the home environment and the device storing the plurality of sets of nonces.

53. An apparatus for facilitating authentication in a wireless network comprising:

(a) means for transmitting an initial nonce value to a serving mobile network;

(b) means for receiving an authentication vector from the serving mobile network, the authentication vector comprising a subsequent nonce value, a first value and a second value, wherein the second value was generated by a home environment associated with the means of (a);

(c) means for generating a third value based on the first value and a first function that is shared with the home environment;

(d) means for determining whether the third value equals the second value;

(e) means for determining whether the subsequent nonce value is in a list of at least one value generated based on the initial nonce value and a second function that is shared with the home environment; and

(f) means for engaging in communications through the serving mobile network, based on the determining steps.

54. An apparatus for facilitating authentication in a wireless network comprising:

(a) means for storing a plurality of sets of nonces, each set comprising one or more values;

(b) means for receiving an authentication vector from a serving mobile network, the authentication vector originating from an authentication center in a home environment network associated with the means for storing the plurality of sets of nonces;

(c) means for extracting a nonce from the authentication vector;

(d) means for determining whether the extracted nonce is either an element of or derivable from the set of nonces from among the plurality of sets of nonces that is associated with the serving mobile network; and

(e) means for engaging in communications through the serving mobile network based on the determining step.

55. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising:

(a) transmitting an initial nonce value to a serving mobile network from a user device;

(b) receiving an authentication vector from the serving mobile network, the authentication vector comprising a subsequent nonce value, a first value and a second value, wherein the second value was generated by a home environment associated with the user device;

(c) generating a third value based on the first value and a first function that is shared with the home environment;

(d) determining whether the third value equals the second value;

(e) determining whether the subsequent nonce value is in a list of at least one value generated based on the initial nonce value and a second function that is shared with the home environment; and

(f) engaging in communications through the serving mobile network, based on the determining steps.

56. A computer-readable medium housing stored thereon instructions, which when executed by a processor, cause the processor to perform a method comprising:

(a) storing a plurality of sets of nonces, each set comprising one or more values;

(b) receiving an authentication vector from a serving mobile network, the authentication vector originating from an authentication center in a home environment network associated with a device storing the plurality of sets of nonces;

(c) extracting a nonce from the authentication vector;

(d) determining whether the extracted nonce is either an element of or derivable from the set of nonces from among the plurality of sets of nonces that is associated with the serving mobile network; and

(e) engaging in communications through the serving mobile network based on the determining step.

57. The computer-readable medium of claim 56 wherein the determining step in the method performed by the processor is carried out based on at least one nonce from the set of nonces from among the plurality of sets of nonces and a function that is shared between the authentication center in the home environment and the device storing the plurality of sets of nonces.